

ABSTRACT

A semiconductor diode laser that generates light at wavelengths longer than conventional diode lasers. The laser includes a first gain element that generates a first "pump" laser beam having a first frequency and a second gain element that generates a second "pump" laser beam having a second frequency. A nonlinear frequency conversion section mixes the two beams to generate a third co-propagating optical beam at the difference frequency. To improve efficiency, the frequency conversion section is furnished with an array of charged electrodes that spatially modulate the nonlinear susceptibility and phase-match the three beams.